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ABSTRACT

The results of a mailed questionnaire survey are presented showing the opinions of a sample of teachers concerning the importance to them of 41 competencies related to measurement and evaluation. Out of a sample of 100 elementary school teachers, 50 junior high school teachers, and 100 senior high school teachers, 58 percent responded to the questionnaire. Responses were made on a five point scale, ranging from 1 for unnecessary and unused skills to 5 for essential and frequently used skills. The results are presented in two tables. The first table shows the mean and standard deviation for each category of teachers separately for each item. The second table presents the same data for items grouped in eight categories. The category receiving the highest rating by elementary school teachers was labeled "communicating evaluation information--conducting effective conferences." The category receiving the lowest rating was labeled "statistical analysis and interpretation--summarizing and describing evaluation information." Reference is made to surveys which show that only a minority of teachers have had formal training in measurement and evaluation. (CTM)

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EVALUATION COMPETENCIES OF THE CLASSROOM TEACHER

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EVALUATION COMPETENCIES OF THE CLASSROOM TEACHER

While in recent years the demands for educational accountability in the public schools have mounted, criticism of the methods for evaluating educational outcomes has also grown (Darehshori, 1977; McKenna, 1977). Standardized instruments, particularly, have been criticized as being dehumanizing, inappropriate to local curriculums, and poorly constructed (Maples, 1977; McKenna, 1977). Increasingly then, the classroom teacher has been asked to provide evidence, from their own measurement and evaluation practices, which demonstrates student growth and achievement (Quinto, 1978).

However, a difficulty arises when an examination is made of the preparation of teachers in the measurement and evaluation area. In 1963, of 248 NCATE accredited institutions, only 50 (20%) required any type of measurement and evaluation course for their teacher education graduates. A 1967 study of Goslin (1967) reported 25% of a sample of elementary teachers and 20% of the secondary teachers sampled had taken no courses related to educational measurement. Sixty-two percent of the elementary sample and 28% of the secondary teachers had taken one course. In a more recent study of Roeder (1974) over half (57.6%) of some 916 institutions having accredited elementary education programs did not require any evaluation courses for their graduates. Even of those requiring some evaluation preparation, exposure was often either minimal or included as part of another course.

The present study was designed to identify those measurement and evaluation skills teachers find desirable and useful in the measurement

of student change, and to compare the usefulness of the various skills to teachers at different levels.

Procedure

A stratified random sample of 250 teachers was drawn which was composed of 100 elementary teachers, 100 secondary teachers and 50 junior high teachers. Each teacher was mailed a forty-one item questionnaire on which each item described a measurement and evaluation skill which may be of value to a teacher. Participants were asked to indicate the value of each skill for themselves in their own educational setting. Responses were made on a 5 point scale ranging from a value of 1, indicating an unnecessary and unused skill, to a value of 5, indicating an essential and frequently used skill. An additional category, 4, was available on which to indicate unfamiliarity with the skill.

Two weeks after the initial mailing a follow-up letter was sent to all participants. One hundred forty-six teachers (58.4%) responded to the survey. Of these 68 were elementary teachers (68%), 34 were junior high teachers (68%) and 44 were secondary teachers (44%).

Results

The results from the survey were analyzed on the basis of each individual item as well as clusters of items related to general measurement and evaluation topics. In both the individual and cluster analyses, mean responses and standard deviations were obtained. A comparison between groups using a t-test for independent means was made on items individually as well as cluster groupings

Table 1 indicates the individual items, the mean and standard deviation values for each group, and significant differences found between groups. Significant differences in group mean responses were found on seventeen items.

Table 2 summarizes the measurement and evaluation competencies of the teachers in various topical areas. Significant differences in the utilization of skills related to standardized tests and their interpretation were found between elementary teachers and both junior high and secondary teachers.

Discussion

The survey results suggest an interesting paradox. While teachers at all levels placed the highest value on those skills related to the communication of evaluation information, the teachers found least useful statistical competencies which form the basis of an accurate interpretation of the evaluation results. This perceived lack of usefulness of these tools may suggest a greater need for preservice teacher education students to become more familiar with and competent in the use of these skills. It also suggests a need for in-service training in the appropriate and accurate communication of evaluation information.

The survey results also indicate teachers at different levels fin different measurement and evaluation competencies of value. In the pre-service teacher education program, these results would suggest not only do all teachers need a foundational exposure to various measurement and evaluation competencies, they also need some specialized measurement training in their particular fields. The professional literature suggests only a small minority of teachers are receiving any form of training. The results of this survey may reflect that lack of either foundational or specialized measurement and evaluation education.

TABLE 1. MEASUREMENT AND EVALUATION COMPETENCIES OF ELEMENTARY, JUNIOR HIGH, AND SENIOR HIGH TEACHERS

MEASUREMENT AND EVALUATION COMPETENCY	I Elementary		II Junior High		III Senior High		Significant Differences
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	t-test at the .05 level
1. State practical uses of evaluation instruments which are designed to measure student achievement and guide instruction.	3.529	1.152	3.677	1.275	3.667	1.119	
2. State the different purposes served by diagnostic, selection, placement, and instructional tests.	3.651	1.207	3.188	1.256	2.925	1.289	I-III
3. Give examples of the use of tests in motivation, practice, review, feedback, etc.	3.348	1.196	3.303	1.104	3.738	1.251	
4. State examples which illustrate the differences between power tests, mastery tests, objective tests, and performance tests.	2.864	1.479	3.069	1.334	2.610	1.243	
5. Evaluate the validity of an evaluation instrument, either a standardized or classroom constructed test.	3.443	1.281	3.545	1.121	3.595	1.149	
6. State the factors which affect the reliability of an instrument and interpret their effects.	2.905	1.241	3.000	1.199	3.024	1.316	
7. Identify factors affecting the practicality of evaluation instruments.	3.231	1.196	3.242	1.251	3.310	1.093	
8. Construct acceptable instructional objectives that can be used to construct tests that measure intellectual learning.	3.548	1.237	3.576	1.173	3.976	1.070	
9. Construct acceptable instructional objectives that can be used to construct tests that measure psychomotor or skill learning.	3.290	1.122	3.063	1.390	3.268	1.467	
10. Construct acceptable instructional objectives that can be used to construct tests that measure affective or attitude and value learning.	3.172	1.121	3.000	1.299	3.357	1.186	
11. Construct a planning table based on content and objectives for use in preparing an evaluation instrument.	2.611	1.106	3.000	1.414	3.154	1.424	I-III
12. Use knowledge of various age and grade groups when selecting instrument types, length and form.	3.719	1.253	3.576	1.226	3.317	1.254	
13. Construct effective instruments to guide instruction such as worksheets, academic games or puzzles, audio-visual evaluation instruments, etc.	4.338	0.924	4.382	1.074	4.045	1.180	
14. Construct effective psychomotor or skill evaluation instruments including checklists, rating scales, etc.	3.000	1.210	3.167	1.577	3.125	1.488	

MEASUREMENT AND EVALUATION COMPETENCY	I Elementary $\bar{X}$	I Elementary S.D.	II Junior High $\bar{X}$	II Junior High S.D.	III Senior High $\bar{X}$	III Senior High S.D.	Significant Differences t-test at the .05 level
15. Construct effective evaluation instruments and procedures for measuring attitudes or values including questionnaires interviews, rating scales, checklists, observation schedules, etc.	2.696	1.127	2.727	1.180	2.732	1.323	
16. Construct an acceptable objective test (alternate-response, multiple choice, matching, completion, problem items) including appropriate directions, test arrangement and scoring keys.	3.403	1.336	4.242	1.119	4.318	0.934	I-II, I-III
17. Construct an acceptable supply test (essay, short answer items) including appropriate directions, test arrangement and scoring keys.	2.891	1.358	3.515	1.439	3.795	1.424	I-II, I-III
18. Construct a test in which tape recordings and/or visual materials (filmstrips, motion pictures, slides, etc.) are used.	2.508	1.369	2.909	1.528	2.951	1.532	
19. Analyze test items in terms of item difficulty and discrimination in order to evaluate the quality of a testing instrument.	2.694	1.301	3.032	1.224	3.190	1.330	
20. Construct, administer, and interpret a sociogram for a group of students.	2.948	1.369	2.042	1.197	1.892	0.966	I-II, I-III
21. Conduct a case study of an individual student.	2.983	1.372	2.714	1.182	2.500	1.301	
22. Given a set of student scores, construct a frequency distribution for the scores.	2.516	1.251	2.941	1.324	3.140	1.441	I-III
23. Given a set of student scores, construct a histogram (bar graph) to represent the scores.	1.967	1.178	1.839	0.860	1.784	1.109	
24. Calculate and interpret measures of central tendency (averages including mean, median and mode.)	2.565	1.301	2.875	1.264	2 767	1.342	
25. Calculate and interpret measures of variability (including range, quartile deviation and standard deviation).	1.804	1.069	1.867	0.860	2 282	1.169	I-III
26. Interpret various statistical measures according to the normal curve, including measures of central tendency (average), measures of variability, standard scores, and percentiles.	2.387	1.323	2.194	0.910	2.550	1.239	
27. Calculate and interpret a correlation coefficient as a measure of relationship between two sets of scores.	1.839	1.041	1.571	0.959	2.057	1.110	
28. Use statistical measures to compare the performances of two classes.	2.129	1.221	2.469	1.191	2.366	1.043	
29. Utilize statistical measures to assign student grades.	2.254	1.445	2.647	1.412	2.951	1.322	I-III
30. Explain the basic concepts and principles underlying various grading approaches including percentage grading, normal curve grading, and norm-referenced or relative grading.	2.574	1.443	3.121	1.409	3.214	1.371	I-III

MEASUREMENT AND EVALUATION COMPETENCY	I Elementary $\bar{X}$	I Elementary S.D.	II Junior High $\bar{X}$	II Junior High S.D.	III Senior High $\bar{X}$	III Senior High S.D.	Significant Differences t-test at the .05 level
31. Evaluate various types of reporting systems and types of report cards.	3.587	1.315	3.088	1.240	2.683	1.312	I-III
32. Administer, score, and interpret the results of a standardized achivement test or a battery of subtests.	3.641	1.361	3.069	1.462	2.537	1.247	I-II, I-III
33. Interpret standardized test scores in terms of age norms, grade norms, standard scores, or percentile ranks.	3.785	1.269	2.844	1.194	2.692	1.321	I-II, I-III
34. Interpret I.Q. scores in terms of mental and chronological ages.	3.635	1.286	2.735	1.238	2.139	1.313	I-II, I-III, II-III
35. Interpret the results of standardized tests that are designed to measure student interests, aptitudes or personality characteristics.	3.079	1.406	2.636	1.141	2.500	1.414	I-III
36. Interpret an individual's score utilizing the standard error of measurement.	2.571	1.277	1.833	0.834	2.000	1.291	I-II, I-III
37. Record, analyze and interpret information contained in a cumulative record folder of a student.	4.063	1.253	3.636	1.113	3.000	1.323	I-III, II-III
38. Discuss the educational implications of test results with a school psychologist or guidance counselor.	3.609	1.048	3.364	1.168	2.930	1.242	I-III
39. Conduct an effective teacher-parent conference.	4.612	0.797	4.382	0.853	4.273	0.973	
40. Conduct an effective teacher-student conference.	4.299	1.142	4.412	0.925	4.409	0.972	
41. Discuss the advantages and criticisms of educational testing, measurement, and evaluation.	3.379	1.064	3.206	1.321	3.000	1.398	

TABLE 2. MEASUREMENT AND EVALUATION COMPETENCIES OF ELEMENTARY, JUNIOR HIGH, AND SENIOR HIGH TEACHERS IN TOPICAL AREAS

TOPICAL AREAS	I Elementary		II Junior High		III Senior High		Significant Differeenc
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	t-test at the .05 level
Measurement Purposes and Functions: assessment for varying purposes.	3.554	1.043	3.400	1.041	3.395	1.001	
Measurement Concepts: validity, reliability and usability.	3.016	1.133	3.273	1.126	2.325	0.994	
Instructional Objectives and Planning: measurable objectives and planning.	3.191	.851	3.269	1.079	3.405	0.865	
Construction of Evaluation Instruments: cognitive, affective and psychomotor.	3.132	.811	3.263	0.806	3.182	0.808	
Statistical Analysis and Interpretation: summarizing and describing evaluation information.	2.125	.890	2.185	0.834	2.394	1.029	
Grading: various approaches to grading and reporting.	2.741	1.136	3.000	1.146	2.895	0.953	
Standardized Tests and Interpretation: administration and utilization of standardized evaluation.	3.580	1.052	2.880	0.927	2.606	1.116	I-II, I-III
Communicating Evaluation Information: conducting effective conferences.	4.000	.866	4.000	0.696	2.818	0.971	
	N = 68		N = 34		N = 44		

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